

Cut-free systems for the propositional modal μ -calculus

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The propositional modal μ -calculus extends standard (multi-)modal propositional logic by operators for least and greatest fixed points of positive operators. We begin with setting up a very natural infinitary calculus for the propositional modal μ -calculus which we collapse to a finite cut-free system afterwards. We show soundness and completeness of both axiomatizations. Completeness is established by constructing a canonical counter-model to any non-provable formula using the method of saturated sequents. Soundness is a consequence of the small model property and well-known results about monotone operators.

This is joint work with Gerhard Jäger and Mathis Kretz.

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